

Chapter 4 Student Success Sheet (SSS)

Domain, Functions, and Slope

Olathe East High School – Intermediate Algebra

Name: _____
Hour: _____

Reminders:

- Homework is completed in **homework notebook only**.
- **All pages** in homework notebook should be labeled accordingly:
Unit ____ Concept ____ - (title of assignment)

Examples:

Unit 1 Concept 1 – Practice Quiz
Unit 1 Concept 1-4 – Practice Test

Need Help? Support is available!

www.mhollan.weebly.com

www.srushingoe.weebly.com

“Success means having the courage, the determination, and the will to become the person you believe you were meant to be.”

George Sheehan

Concept #	What we will be learning...	Mandatory Practice
1	Identifying coordinates and plotting points; identify quadrant of resulting point	Practice Quiz 1
2	Finding domain and range of relations and functions (given ordered pairs)	Practice Quiz 2
3	Identifying functions using table/ordered pairs	Practice Quiz 3
4	Identifying functions using vertical line test	Practice Quiz 4
5	Identifying rate of change given table	Practice Quiz 5
6	Identifying rate of change given graph or word problem	Practice Quiz 6
7	Finding slope given graph	Practice Quiz 7
8	Finding slope given points; identifying type of line (uphill positive, downhill negative, horizontal zero, vertical undefined)	Practice Quiz 8

Calories Per Serving of Some Common Foods

Food	Grams of Fat	Number of Calories	Food	Grams of Fat	Number of Calories
Whole Milk	8	150	Eggs	6	80
Chicken	4	90	Ham	19	245
Corn	1	70	Broccoli	1	45
Ground Beef	10	185	Cheese	9	115

Write the information given as ordered pairs

Write the information given in a t-chart

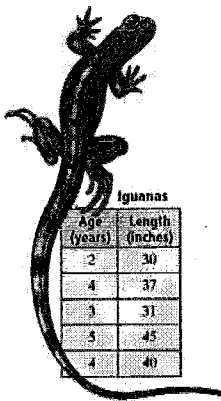
D: { } Write the information given in a Mapping Diagram

Plot the ordered pairs on a graph (estimate large numbers)

R: { }

Write the information given as ordered pairs

Write the information given in a t-chart



Write the information given in a Mapping Diagram

Plot the ordered pairs on a graph (estimate large numbers)

D: { }

R: { }

Practice Quizzes – Concept 2 practice quiz is on the next page after concept 3

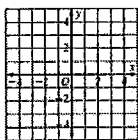
#3 Identifying functions using table/ordered pairs

A relation that assigns to each value in the domain exactly one value in the range is called a **function**.

1. By using a **m** _____ **d** _____ and looking for “ _____ ”

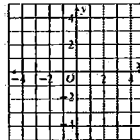
We can identify functions in two ways:

x	y
-1	4
2	3
4	-1
-1	-2



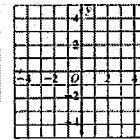
Mapping Diagram: This relation **IS/IS NOT** a _____ because _____

x	y
-4	1
1	3
4	0
1	-2



Mapping Diagram: This relation **IS/IS NOT** a _____ because _____

x	y
2	-4
-4	0
-2	3
3	-1



Mapping Diagram: This relation **IS/IS NOT** a _____ because _____

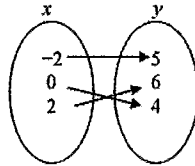
Practice Quizzes – Concept 2 and 3

DIRECTIONS:

- a) Write the domain and range for the given relation
- b) State whether the relation is a function and give a reason!

Work through these problems for understanding, not just completion. Ask if you need more practice. ~~Check answers on the last page of your 999.~~

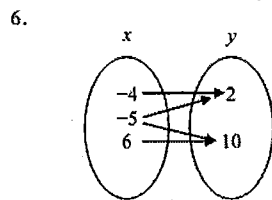
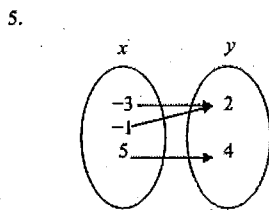
1. $\{(3,4), (4,-6), (5,-7), (3,2), (-2,5)\}$ 2. $\{(-4,6), (-3,2), (1,0), (7,6), (8,2)\}$
 3. $\{(-3,4), (-2,5), (0,0), (-2,5), (4,8)\}$ 4.



7. $\{(-1, 5), (0, 2), (1, -4), (2, 1)\}$

8. $\{(-1, 2), (-1, 3), (-1, 4), (-1, 5)\}$

9. $\{(-1, 5), (1, 5), (3, 5), (5, 5)\}$



x	y
-4	-5
-3	-8
-2	-11
-1	-14

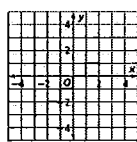
10.

11. $\{(9, 0), (0, 9), (4, 5), (5, 4)\}$

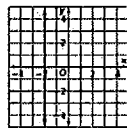
#4 Identifying functions using vertical line test

2. By using a
g_____ and
the V_____
L____ T____ (VLT)

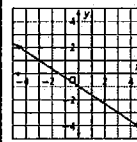
Use the vertical line test to decide if the graph represents a function. Write your answer in a sentence.



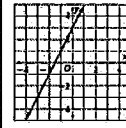
This relation IS/IS NOT
a _____ because



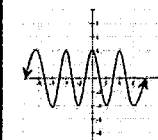
This relation IS/IS NOT
a _____ because



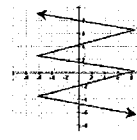
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a _____ because



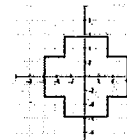
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a _____ because



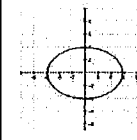
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a _____ because



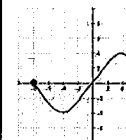
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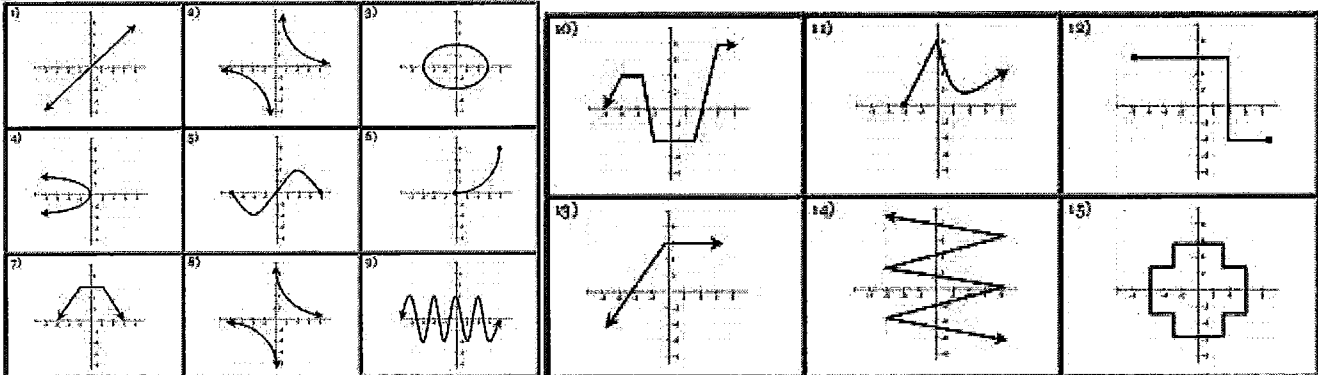
This relation IS/IS NOT
a _____ because



This relation IS/IS NOT
a _____ because

Practice Quizzes – Concept 4

Work through these problems for understanding, not just completion. Ask if you need more practice. ~~Check answers on the last page of your SSP.~~



#5 Identifying rate of change given table																													
<table border="1"> <caption>Cost of Renting a Computer</caption> <thead> <tr> <th>Number of Days</th> <th>Rental Charge</th> </tr> </thead> <tbody> <tr><td>1</td><td>\$60</td></tr> <tr><td>2</td><td>\$75</td></tr> <tr><td>3</td><td>\$90</td></tr> <tr><td>4</td><td>\$105</td></tr> <tr><td>5</td><td>\$120</td></tr> </tbody> </table>	Number of Days	Rental Charge	1	\$60	2	\$75	3	\$90	4	\$105	5	\$120		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>1</td><td>12</td></tr> <tr><td>2</td><td>15</td></tr> <tr><td>3</td><td>18</td></tr> <tr><td>4</td><td>21</td></tr> <tr><td>5</td><td>24</td></tr> <tr><td>6</td><td>27</td></tr> </tbody> </table>	x	y	1	12	2	15	3	18	4	21	5	24	6	27	
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<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-2</td><td>3</td></tr> <tr><td>-1</td><td>1</td></tr> <tr><td>0</td><td>-1</td></tr> <tr><td>1</td><td>-3</td></tr> </tbody> </table>	x	y	-2	3	-1	1	0	-1	1	-3		<table border="1"> <thead> <tr> <th>Time</th> <th>Height</th> </tr> </thead> <tbody> <tr><td>0</td><td>100</td></tr> <tr><td>1</td><td>90</td></tr> <tr><td>2</td><td>80</td></tr> <tr><td>3</td><td>70</td></tr> <tr><td>4</td><td>60</td></tr> </tbody> </table>	Time	Height	0	100	1	90	2	80	3	70	4	60					
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-1	1																												
0	-1																												
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-1	4																												
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1	-2																												
2	-5																												

Practice Quizzes – Concept 5

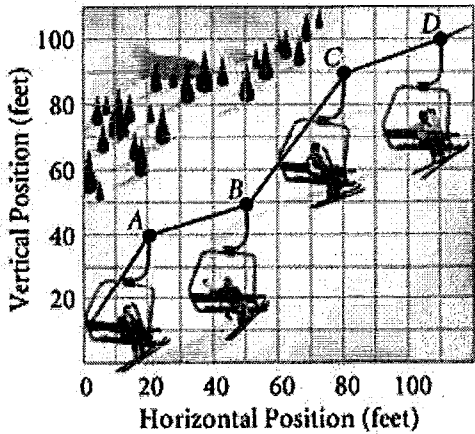
Work through these problems for understanding, not just completion. Ask if you need more practice. ~~Check answers on the last page of your SSP.~~

1.	<table border="1"> <thead> <tr> <th>Time (hr)</th> <th>Temperature (°F)</th> </tr> </thead> <tbody> <tr><td>1</td><td>-2</td></tr> <tr><td>4</td><td>7</td></tr> <tr><td>7</td><td>16</td></tr> <tr><td>10</td><td>25</td></tr> </tbody> </table>	Time (hr)	Temperature (°F)	1	-2	4	7	7	16	10	25	2.	<table border="1"> <thead> <tr> <th>Time (hr)</th> <th>Temperature (°F)</th> </tr> </thead> <tbody> <tr><td>2</td><td>7.90</td></tr> <tr><td>3</td><td>11.85</td></tr> <tr><td>4</td><td>15.80</td></tr> <tr><td>5</td><td>19.75</td></tr> </tbody> </table>	Time (hr)	Temperature (°F)	2	7.90	3	11.85	4	15.80	5	19.75	3.	<table border="1"> <thead> <tr> <th>x (run)</th> <th>y (rise)</th> </tr> </thead> <tbody> <tr><td>-4</td><td>-2</td></tr> <tr><td>-2</td><td>-1</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>4</td><td>2</td></tr> </tbody> </table>	x (run)	y (rise)	-4	-2	-2	-1	0	0	2	1	4	2	4.	<table border="1"> <thead> <tr> <th>X</th> <th>Y</th> </tr> </thead> <tbody> <tr><td>0</td><td>1.5</td></tr> <tr><td>1</td><td>3</td></tr> <tr><td>2</td><td>4.5</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>5</td><td>7.5</td></tr> </tbody> </table>	X	Y	0	1.5	1	3	2	4.5	4	6	5	7.5	5.	<table border="1"> <thead> <tr> <th>X</th> <th>Y</th> </tr> </thead> <tbody> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>2</td></tr> <tr><td>4</td><td>3</td></tr> <tr><td>8</td><td>4</td></tr> <tr><td>12</td><td>5</td></tr> </tbody> </table>	X	Y	0	1	2	2	4	3	8	4	12	5
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12	5																																																																

#6 Identifying rate of change given graph or word problem

When identifying rate of change on a graph, it is important to notice the

- U _____ on both the x-axis and y-axis
- S _____ on both the x-axis and y-axis



A to B?	B to C?	C to D?
A to C?	A to D?	B to D?

1. Ladainian Tomlinson rushed for 120 yards on 30 *carries*. How many yards to LT get per carry?
 _____ yards per _____ carries REDUCE TO _____ yards per 1 carry

2. 100 homecoming tickets were sold in 2.5 *hours*. How many tickets were sold per hour?
 _____ tickets per _____ hours REDUCE TO _____ tickets per 1 hour

3. You can run 3 miles in 45 *minutes*. How long will it take you to run 5 miles?
 _____ miles per _____ minutes EXPAND TO 5 miles per _____ minutes

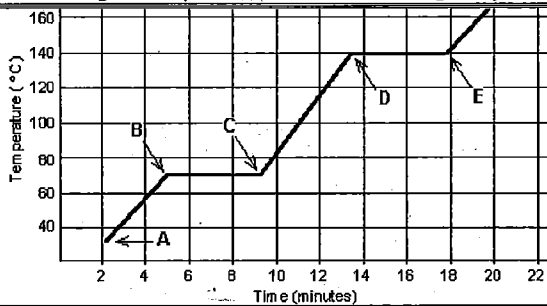
4. Jim decided to drop out of school to pursue a career at McDonalds. He made 55 dollars in 10 *hours*. Bill decided to finish high school and college so he could work for a sweet robot making company. He made 50 dollars in 2 *hours*. How much do Jim and Bill each make an hour? Would you rather follow Jim or Bill's path?

5. The ninja drop kicked 120 pirates in the head in *one minute*. The pirate drop kicked 480 ninjas in *three minutes*. Who would you rather have on your drop kicking team, the ninja or the pirate? Why?

6. Staples sells 6 crayons for *\$1.20*. Office Depots sells 7 crayons for *\$1.40*. Which is a better buy?

Practice Quizzes – Concept 6

Work through these problems for understanding, not just completion. Ask if you need more practice. ~~Check answers on the last page of your book.~~



Assume the points to the left are in these locations:

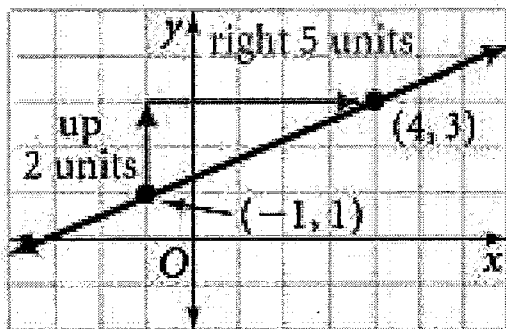
- A (2, 20)
- B (5, 70)
- C (9, 70)
- D (13, 140)
- E (18, 140)

- | | |
|-----------|------------|
| 1. A to B | 6. B to D |
| 2. A to C | 7. B to E |
| 3. A to D | 8. C to D |
| 4. A to E | 9. C to E |
| 5. B to C | 10. D to E |

- 11. Ladaian Tomlinson rushed for 150 yards on 50 carries. How many yards to LT get per carry?
- 12. 300 homecoming tickets were sold in 4 hours. How many tickets were sold per hour?

#7 Finding slope given graph

Find the slope of the line.



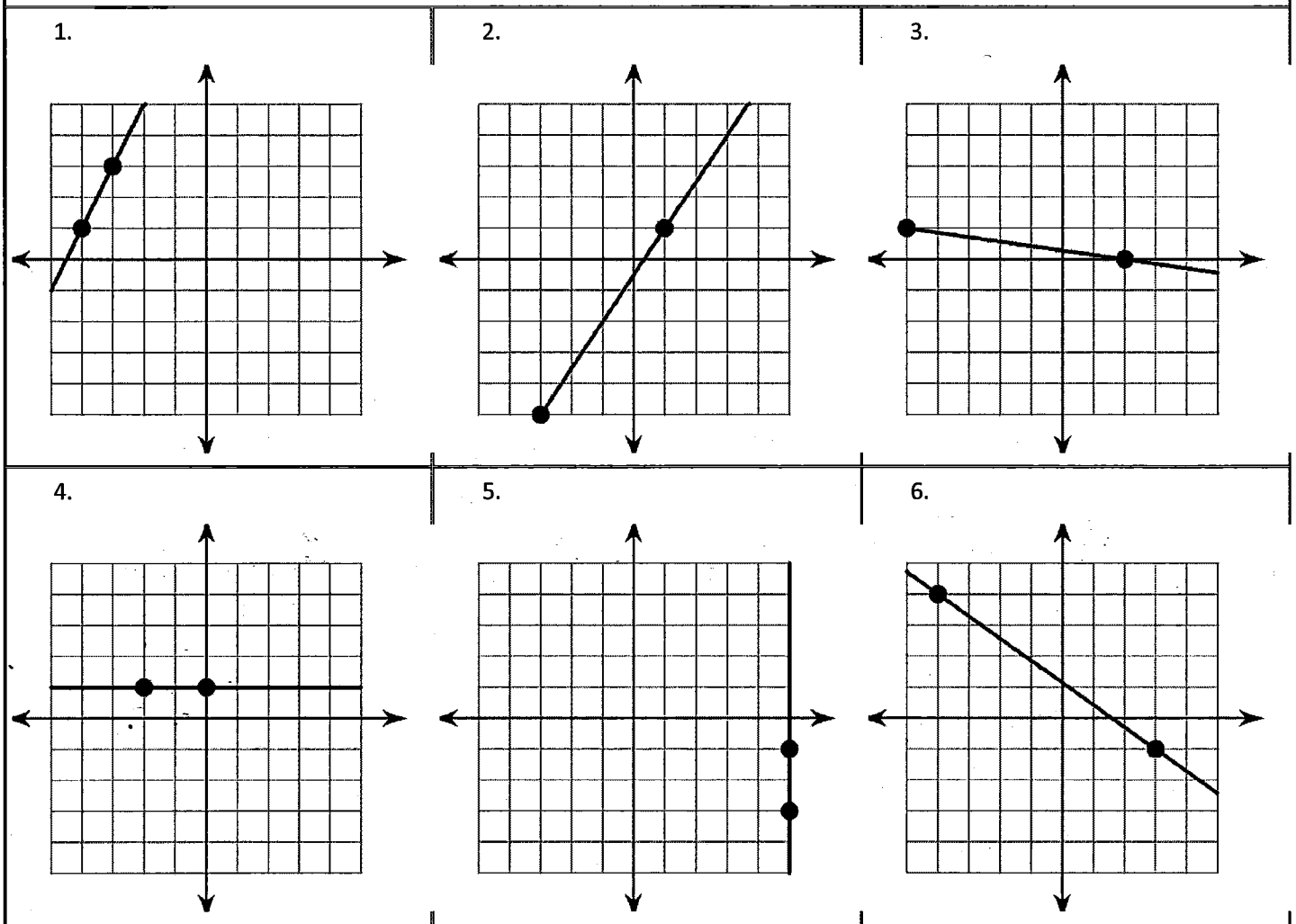
$$\begin{aligned} \text{slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{3 - 1}{4 - (-1)} \\ &= \frac{2}{5} \end{aligned}$$

The slope of the line is $\frac{2}{5}$.

Rate of Change Slope!

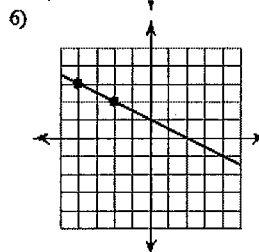
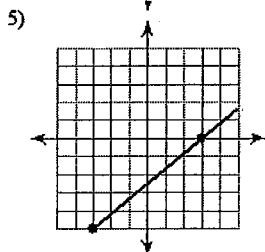
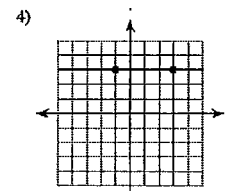
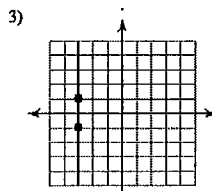
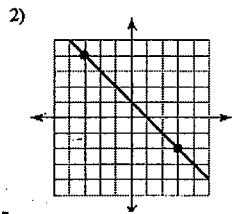
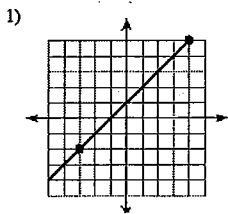
Slope ... Rise over Run!

Rise over run ... _____ (coming soon!)



Practice Quizzes – Concept 7

Work through these problems for understanding, not just completion. Ask if you need more practice. ~~Check answers on the last page of your 685.~~



#8

Finding slope given points; identifying type of line *(uphill positive, downhill negative, horizontal zero, vertical undefined)*

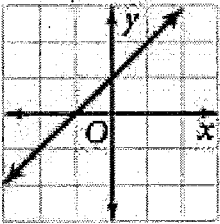
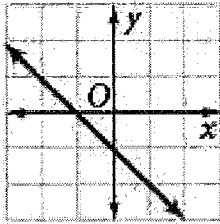
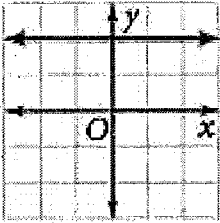
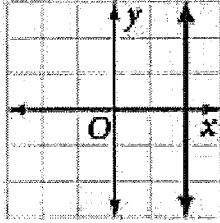
Rate of Change Slope!

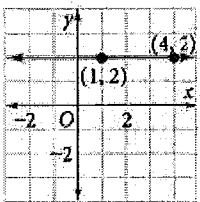
Slope ...

Rise over Run!

Rise over run ... _____

Formula	Slope
$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}, \text{ where } x_2 - x_1 \neq 0$	

Summary	Slopes of Lines
	<p>A line with positive slope slants upward from left to right.</p>
	<p>A line with negative slope slants downward from left to right.</p>
	<p>A line with a slope of 0 is horizontal.</p>
	<p>A line with an undefined slope is vertical.</p>



$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

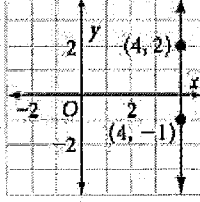
$$= \frac{2 - 2}{4 - 1}$$

$$= \frac{0}{3}$$

$$= 0$$

Substitute (4, 2) for (x_2, y_2) and (1, 2) for (x_1, y_1) .
Simplify.

The slope of the horizontal line is 0.



$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{2 - (-1)}{4 - 4}$$

$$= \frac{3}{0}$$

Substitute (4, 2) for (x_2, y_2) and (4, -1) for (x_1, y_1) .
Simplify.

Division by zero is undefined. So, the slope of the vertical line is undefined.

7) $(13, 14), (13, -10)$	Slope = _____ Type of line: _____ _____	8) $(-15, -6), (8, -15)$	Slope = _____ Type of line: _____ _____
9) $(1, 2), (-19, -18)$	Slope = _____ Type of line: _____ _____	10) $(-3, -19), (12, 5)$	Slope = _____ Type of line: _____ _____
11) $(13, -11), (-6, 3)$	Slope = _____ Type of line: _____ _____	12) $(-6, 4), (3, 4)$	Slope = _____ Type of line: _____ _____
13) $(9, 19), (9, -16)$	Slope = _____ Type of line: _____ _____	14) $(12, -18), (-10, -18)$	Slope = _____ Type of line: _____ _____
15) $(-4, -2), (16, 9)$	Slope = _____ Type of line: _____ _____	16) $(12, 6), (-16, 16)$	Slope = _____ Type of line: _____ _____

Practice Quizzes – Concept 8

Work through these problems for understanding, not just completion. Ask if you need more practice. Check answers on the last page of your SS.

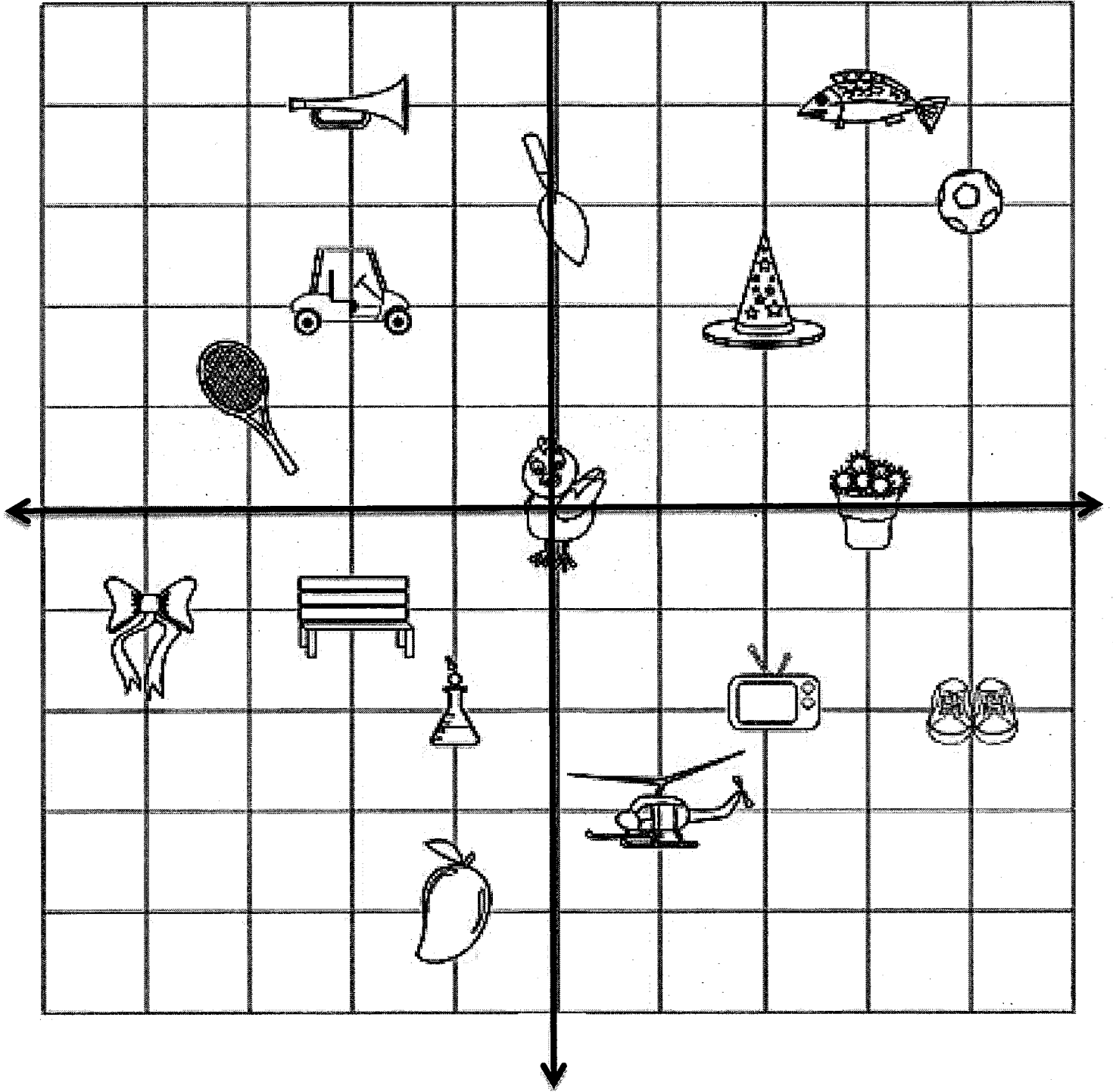
- 7) $(-14, -18), (-20, 10)$
- 9) $(16, 8), (16, -6)$
- 11) $(14, 7), (7, -7)$
- 13) $(10, 7), (-2, 19)$
- 15) $(-7, 16), (-7, 20)$

- 8) $(-18, 12), (12, -7)$
- 10) $(-12, 0), (7, 0)$
- 12) $(-9, 8), (-10, 8)$
- 14) $(-13, -11), (2, -20)$
- 16) $(5, -1), (5, 10)$

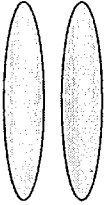
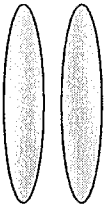
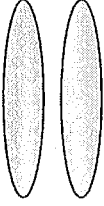
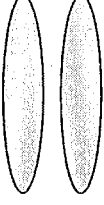
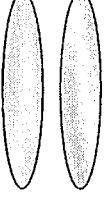
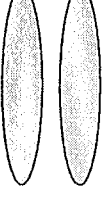
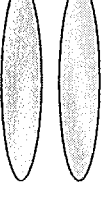
Practice Test-

Work through these problems for understanding, not just completion. Ask if you need more practice. Check answers on the last page of your 996.

(Covers material from Concepts 1,2,3,6,7,8)



Practice Test Chapter 4

Object	Ordered Pair	Objects	Table	Mapping diagram	Domain & Range	Function or relation?				
Trumpet		Trumpet, shovel, soccer ball, bow, shoes	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Car										
Shovel										
Fish		Shovel, pear, hat, bird, flowers, helicopter	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Soccer ball										
Bow		Television, bench, shoes, flowers, bird, hat	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Bench										
television		Car, trumpet, fish, shoes, beaker	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Shoes										
Helicopter		Helicopter, shoes, flowers, bird, beaker, fish	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Flowers										
Bird		Pear, shovel, soccer ball, fish, tennis racket	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Beaker										
Hat		Bird, beaker, helicopter, bow, fish, shovel, trumpet	<table border="1"> <tr> <td>x</td> <td>y</td> </tr> <tr> <td></td> <td></td> </tr> </table>	x	y					
x	y									
Tennis racket										
Pear										

Practice Test Chapter 4

Objects	Ordered pairs of two objects	Slope of the line between two objects using rise/run	Slope of the line between two objects using slope formula	Type of line
Bow and helicopter		Rise = Run =	$\frac{() - ()}{() - ()} =$	<i>Uphill positive, Downhill negative, Horizontal zero, Vertical undefined</i>
Shoes and television			$\frac{() - ()}{() - ()} =$	
Pear and beaker			$\frac{() - ()}{() - ()} =$	
Car and shovel			$\frac{() - ()}{() - ()} =$	
Fish and hat			$\frac{() - ()}{() - ()} =$	
Flowers and soccer ball			$\frac{() - ()}{() - ()} =$	
Bird and shovel			$\frac{() - ()}{() - ()} =$	
Bow and bench			$\frac{() - ()}{() - ()} =$	
Bench and television			$\frac{() - ()}{() - ()} =$	
Helicopter and fish			$\frac{() - ()}{() - ()} =$	
Soccer ball and beaker			$\frac{() - ()}{() - ()} =$	
Car and hat			$\frac{() - ()}{() - ()} =$	
Tennis racket and shoes			$\frac{() - ()}{() - ()} =$	
Trumpet and fish			$\frac{() - ()}{() - ()} =$	
Bench and car			$\frac{() - ()}{() - ()} =$	
Pear and shoes			$\frac{() - ()}{() - ()} =$	

Chapter 4 Songs, Chants, and Sentence Frames

Concept 1

Concept 2

Concept 3

Concept 4

This relation IS/IS NOT a

This relation IS/IS NOT a

_____ because _____

_____ because _____

Concept 5

Concept 6

Concept 7

Concept 8

Rate of Change is written as

Rate of Change...Slope!

Rate of Change...Slope!

_____ for every _____

Or

Slope... Rise over Run!

Slope... Rise over Run!

_____ per _____

Rise over run ... _____

Rise over run ...
 $y_{sub\ 2} - y_{sub\ 1}$ over
 $x_{sub\ 2} - x_{sub\ 1}$

Practice Quiz Concept 1

#1-18

